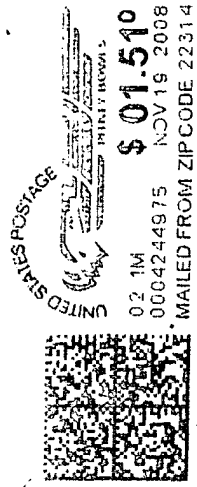


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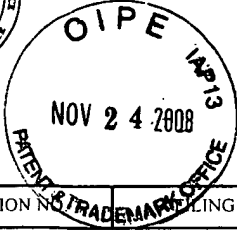
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/550,649

04/17/2000

Jarod Guertin

10.0029

1375

22474 7590 11/19/2008  
CLEMENTS BERNARD MILLER  
1901 ROXBOROUGH ROAD  
SUITE 300  
CHARLOTTE, NC 28211

EXAMINER

KIM, DAVID S

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

11/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Advisory Action  
Before the Filing of an Appeal Brief**

Application No.

09/550,649

Applicant(s)

GUERTIN ET AL.

Examiner

DAVID S. KIM

Art Unit

2613

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 07 November 2008 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 1-22.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
13. ☒ Other: See Continuation Sheet.

/Kenneth N Vanderpuye/  
Supervisory Patent Examiner, Art Unit 2613

## Continuation of 3. NOTE:

Applicant's proposed amendment introduces limitations absent from the previous version of the claims. In doing so, the proposed amendment raises new issues related to a change in the scope of the claims. A proper and sufficient response to these new issues would require further consideration and/or search.

For example, at least one newly introduced limitation absent from the previous version of the claims is:

(in independent claims 1, 5, and 9) by calculating Bit Interleave Parity for each frame and comparing it to calculated Bit Interleave Parity for a next frame.

Continuation of 11. does NOT place the application in condition for allowance because:

Applicant's arguments have been fully considered, but they are not persuasive. Applicant presents five salient points.

Regarding the first point, Applicant states:

"First, Applicants respectfully submit that the Juniper reference is disqualified prior art pursuant to 35 U.S.C. §103(c). Specifically, this reference is a publication of Ciena Corporation, the assignee of the present application" (REMARKS, p. 12, last paragraph).

Regarding the second point, Applicant states:

"Further, Applicant respectfully notes that the Juniper reference does not include a publication date. The Juniper reference does include dates of January 1999 on page 3 which are the dates the testing was performed at Ciena's validation labs. However, there is not a corresponding publication date listed on the reference" (REMARKS, p. 12, last paragraph).

However, both of these points are moot in view of the publication date of the Juniper reference provided by two corroborating websites: silicon.com and zdnet.co.uk (see the copy of the Juniper reference with the record of the search for the publication date and the confirmation of the publication date, noted in the form PTO-892 Notice of References Cited). Both of these websites show that the publication date of the Juniper reference is 11 January 1999. Since 11 January 1999 is more than one year before Applicant's filing date of 17 April 2000, the Juniper reference qualifies as a 102(b) prior art document. As a 102(b) prior art document, the exclusion under 103(c) does not apply. Accordingly, Applicant's first and second points are not persuasive.

Regarding the third point, Applicant states:

"Examiner is not persuaded by Applicants previous amendments and arguments with respect to simultaneously testing and isolating errors. Examiner cites Waschka Jr. at col. 19, lines 30-59 for teaching the diagnostic signal functionality. However, Waschka Jr. teaches isolating the fault location through "sequential testing of the stations along the channel" (see Waschka Jr. at col. 19, lines 40-41). Applicants are unclear as how Waschka Jr. can be modified with Hoogerbrugge to provide fault isolation while simultaneously testing the communication channel in a cascaded fashion. Applicants respectfully agree that simultaneous testing is a suitable alternative to sequential testing; however, Applicants do not agree that the combination of references teach simultaneous testing cascaded channels while isolating faults to a specific channel at the same time" (REMARKS, p. 14, last full paragraph).

Examiner respectfully notes that Applicant's specification does not support the simultaneous occurrence of these two events: (1) fault isolation and (2) testing the communication channel in a cascaded fashion. That is, Applicant's specification teaches that these two events occur in a chronological order. First, "testing the communication channel in a cascaded fashion" occurs (p. 11, l. 1-3). Second, "fault isolation" occurs (p. 11, l. 3-11). Similarly, the prior art of record teaches, first, "testing the communication channel in a cascaded fashion" (Waschka, Jr., col. 19, l. 25-28), and, second, "fault isolation" (Waschka, Jr., col. 19, l. 30-42). Regarding "simultaneous testing cascaded channels", the prior art of record teaches "testing cascaded channels" (Waschka, Jr., col. 19, l. "sequential testing" in col. 19, l. 42) and also teaches the obvious variation of "simultaneous" testing (Hoogerbrugge, p. 977, col. 1, 2<sup>nd</sup> to last paragraph). Accordingly, Applicant's third point is not persuasive.

Regarding the fourth point, Applicant states:

"Applicants respectfully submit that the performance monitor and diagnostic signals are not taught by Waschka Jr. Waschka Jr. only teaches sequential testing. The purpose of the performance monitor and the diagnostic signals is to enable the isolation of as few as one bit error in order to significantly reduce testing time and equipment. Waschka Jr. specifically teaches sequential testing. Accordingly, Waschka Jr. cannot teach the performance monitor and diagnostic signals since these specifically function to enable simultaneous testing and isolation which Waschka Jr. specifically teaches against" (REMARKS, p. 14-15, bridging paragraph).

Examiner respectfully notes that the standing rejections do not rely on Waschka, Jr. for teachings of "simultaneous testing". Rather, the standing rejections recognize this point and rely on Hoogerbrugge for teachings of "simultaneous testing" (p. 977, col. 1, 2<sup>nd</sup> to last paragraph). Accordingly, Applicant's fourth point is not persuasive.

Regarding the fifth point, Applicant relies on new limitations introduced by Applicant's proposed amendment. As noted above, Applicant's

proposed amendment will not be entered. Accordingly, Applicant's fifth point is moot.

Summarily, Applicant's arguments are not persuasive. Accordingly, Examiner respectfully maintains the standing rejections.

Continuation of 13. Other:

**CLAIM OBJECTIONS**

Applicant's response to the objection to claim 5 in the previous Office Action (mailed on 10 September 2008) is noted and appreciated. Applicant responded by filing proposed amendments to claim 5. Applicant's response would overcome the previous objection to claim 5 if the proposed amendment to claim 5 were to be entered.

**CLAIM REJECTIONS - 35 U.S.C. 112**

Applicant's response to the two sets of rejections of claims 1-22 under 35 U.S.C. 112, first paragraph, in the previous Office Action (mailed on 10 September 2008) is noted and appreciated. Applicant responded by filing proposed amendments to independent claims 1, 5, and 9. Applicant's response would overcome the previous two sets of rejections of claims 1-22 if the proposed amendments to independent claims 1, 5, and 9 were to be entered.

<b>Notice of References Cited</b>	Application/Control No. 09/550,649	Applicant(s)/Patent Under Reexamination GUERTIN ET AL.	
	Examiner DAVID S. KIM	Art Unit 2613	Page 1 of 1

**U.S. PATENT DOCUMENTS**

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**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	"Test Results: Juniper Networks M40 Internet Backbone Router Inter-operating with the CIENA MultiWave Sentry DWDM System." 11 January 1999 (the search for the publication date and the confirmation of the publication date are also included).
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



## **Test Results**

# **Juniper Networks M40 Internet Backbone Router**

**Inter-operating with the**

# **CIENA MultiWave Sentry DWDM System**



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## 1- Summary

Interoperability testing has been successfully performed between a Juniper Networks, Inc. M40 Backbone Router and a CIENA Communications, Inc. MultiWave Sentry 1600 long haul DWDM transport system. The test demonstrated compatibility between the M40 router and MultiWave Sentry 1600 DWDM system optical interfaces at 2.5 Gbs (SONET OC48c). The test also demonstrated Juniper M40 router traffic over CIENA Sentry 1600 for a long distance span of 12,000 km.

The testing was done at the CIENA engineering validation labs in Linthicum, Maryland on the dates of January 10 through January 11, 1999.

## 2 – Test Configurations / Test Procedure

A test plan was agreed upon by the CIENA and Juniper. The document is titled "Interoperability Test Plan Juniper Networks M40 Internet Backbone Router Interoperating with the CIENA MultiWave Sentry DWDM System, Version 1.1, 1/10/99"

The test set out to prove that the Juniper Networks M40 Internet Backbone Router, equipped with OC-48c trunk capability can be directly connected to the CIENA MultiWave Sentry DWDM system without detrimental impact to traffic through-put, error rate or optical transmission characteristics.

CIENA's MultiWave Sentry DWDM systems can transmit up to 500 km before regeneration. Each regeneration site consists of a Sentry Terminal Transmitter and Receiver module. The CIENA MultiWave Sentry 1600 was set-up with 24 back to back regeneration spans for a total of 12,000 km (24 x 500km). The actual test exceeded the plan of 16 back to back regeneration points (8,000 km). The Juniper M40 Router generated IP traffic at SONET OC-48c (2.5 Gbs).

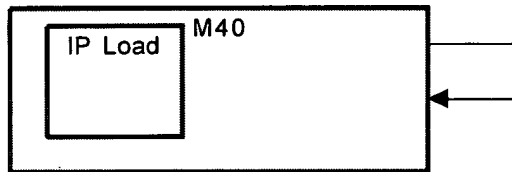
The test procedure was as follows:

1. **Optical Performance Test** – Measurements were taken for center frequency, power, and extinction ratio.
2. **Jitter Transfer Test** – Jitter Transfer was measured in accordance with Bellcore GR-253 OC-48 interface requirements.
3. **Jitter Tolerance Test** – Jitter Tolerance was measured in accordance with Bellcore GR-253 OC-48 interface requirements.



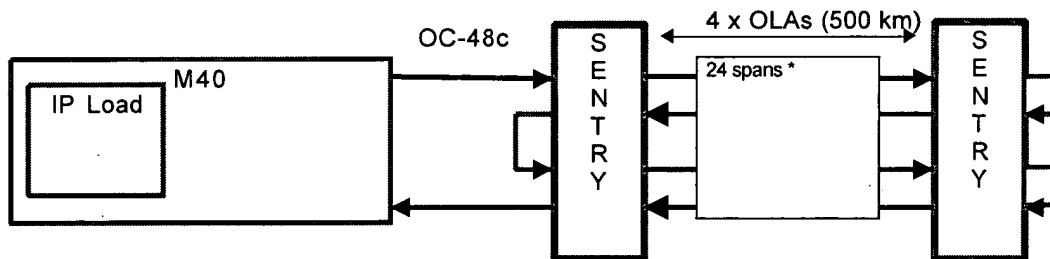
4. **Concatenated Span Performance Test** - IP loads were generated on the M40 router. This load will be run for a 24-hour period. Total errors incurred were noted. SONET performance monitoring on both the Sentry terminal ports and M40 router ports. The two configurations are described below:

- a) **Configuration 1** - Direct M40 to M40 test to establish a performance benchmark.



*Figure 1. M40 router IP performance set-up.*

- b) **Configuration 2** - M40 to M40 via concatenated MultiWave Sentry spans creating an 8,000 km system via 16 spans and 12,000 km system via 24 wrapped spans. Each span at 500 km each with four optical line amplifiers in each span.



*Figure 2. M40 Router and CIENA Sentry 1600 multiple span set-up. Each span has 4 optical line amplifiers (OLAs)*

### 3 - Equipment Used

The following equipment was used:

- 1) CIENA MultiWave Sentry 1600 DWDM transport system. The system consists of two terminals and four optical line amplifiers (OLA). Each terminal was equipped with six Transmitter and six Receiver modules.
- 2) Juniper M40 Internet Backbone Router with OC48c Packet over SONET interface

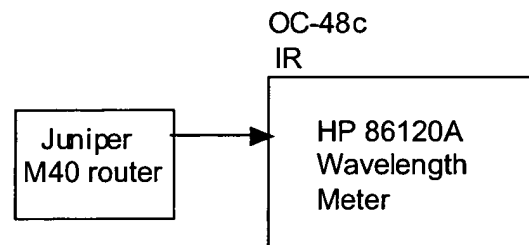


- 3) 5 spools of 100 km NDSF fiber. The fibers were used between CIENA optical line amplifiers and terminals.
- 4) HP 86120A Multi-Wavelength meter
- 5) HP 8153A power meter
- 6) HP Series 90Jitter analyzer
- 7) HP 83480A/83485A Digital Communications Analyzer
- 8) Tektronix ST-2400 SONET OC48 BER test set
- 9) Misc. attenuators

#### 4 - Test Results

##### 1) Optical Performance Test of M40 OC-48c Interface

##### 1.1) M40 optical interface wavelength measurement



*Figure 3. M40 Router optical interface wavelength measurement set-up*

Wavelength specification: 1260 to 1360 nm

Wavelength measured:

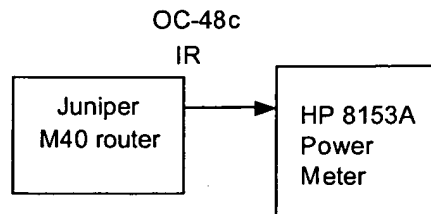
Slot 1: 1308.661 nm

Slot 2: 1309.110 nm

Result: Both M40 line cards met the input wavelength requirements.



### 1.2) M40 optical power.

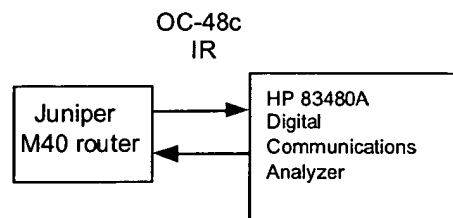


*Figure 4. M40 Router interface power measurement setup.*

- CIENA Transmitter short reach input specification: -18 to -3 dBm.
- M40 output power specification: 0 dBm to -5 dBm per Bellcore GR-253-CORE OC-48 intermediate reach interface
- M40 Power level measured: -1.73 dBm (@1309.110 nm)

Result: Output power of M40 meets specifications of OC48 IR interface and with optical attenuation (to match SR power levels) was proven interoperable with CIENA Sentry transmitters.

### 1.3) M40 Extinction ratio.



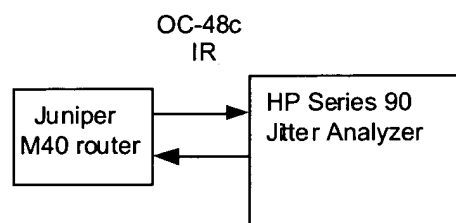
*Figure 5. M40 router optical interface extinction ratio measurement setup.*

Specification: > 8.2 dB (Bellcore GR-253-CORE)  
Extinction ratio: Slot 1: 16.29 dB; Slot 2: 16.28 dB.

Results: The M40 line cards met Bellcore requirements for extinction ratio.

## 2) M40 Jitter Tests

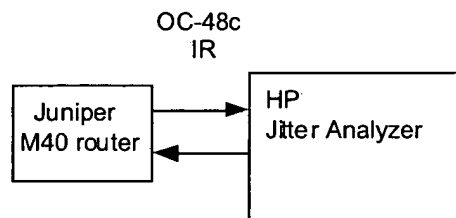
### 2.1) Jitter Transfer Function:



*Figure 6. M40 Router Jitter Transfer Set-up*

Results: M40 router (module AA6268) passed SONET jitter transfer test

### 2.2) Jitter Tolerance Test.



*Figure 7. M40 Router Jitter Tolerance Measurement set-up.*

Results: M40 router (module AA6268) was tested for SONET mask, 1.2 x SONET mask, and 1.44 (1.2 x 1.2) x SONET mask. No CVs (code violations) were found during the tests.



### 3.) Back to back performance measurement

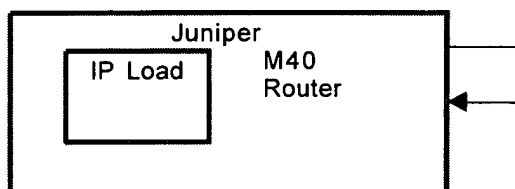


Figure 8. M40 router IP performance baseline.

Results: The M40 was tested for one hour and ran error free. It was then connected to the CIENA MultiWave Sentry 1600 Transmitter and Receiver modules.

### 4) Multiple span test

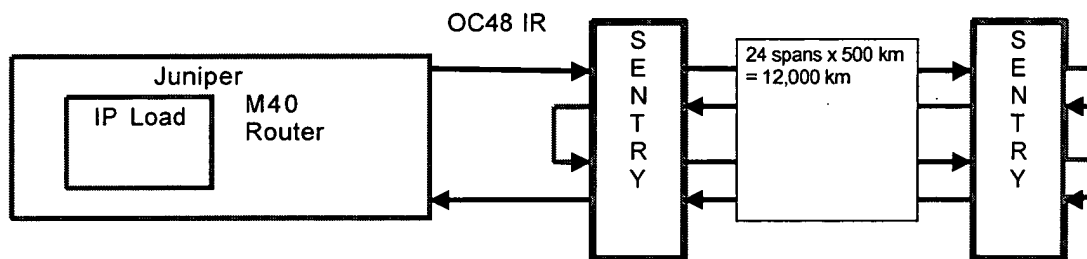


Figure 9. M40 Router and CIENA Sentry 1600 multiple span set-up.

Prior to connecting to the M40 router, the Sentry 1600 was tested with a Tektronix ST-2400 SONET BERT to establish a baseline of error-free operation. The Sentry 1600 ran 44 hours error free on 16 spans and then 94 hours error free on 24 spans.

Next, the router was attached and ran the following tests:

- 1) 16 spans – 1480 byte IP packets for 1 hour
- 2) 16 spans – 40 byte IP packets for 10 minutes.

No errors were detected, so the team agreed to run the test at 24 spans. The 24 span tests as follows:

- 1) 24 spans – 1480 byte IP packets for 1 hour.
- 2) 24 spans – 40 byte IP packets for 17 hours.



No errors were detected

## **Appendix A – Terminology**

**DWDM** – Dense Wave Division Multiplexing. The frequency multiplexing of 16 or more OC-48 channels across a single fiber.

**M40** – Juniper Network's high-capacity Internet backbone router capable of trunk rates up to OC-48.

**MultiWave Sentry** – CIENA's DWDM system, consisting of two terminals supporting the transmission of between 1 and 40 OC-48 channels over 500 km via the use of erbium doped fiber optic amplification equipment. This includes all control processors and other ancillary alarm and control modules.

**OC-48c** – Optical Carrier level 48 concatenated. A SONET (Synchronous Optical transmission) speed and interface operating at approximately 2.5 Gbs.

**Test System** – The complete arrangement of CIENA MultiWave Sentry DWDM amplifiers and terminals, Juniper's M40 IP router, test measurement equipment, cable, fiber jumpers and taps.

**Test Cases** – The various tests which will be run as part of this undertaking.

**Configurations** – The varying combinations of equipment arrayed for the execution of the test cases.

**Concatenated Spans** – The successive back to back connection of DWDM terminals intended to transmit an OC-48 signal further than the 500km limit of a single span. For this test, concatenated spans can be simulated via one fully configured MultiWave Sentry 1600 by folding or wrapping OC-48 transmitter outputs back into receiver inputs.

**Span** – A single MultiWave Sentry system driving an OC-48 channel(s) a maximum of 500km.

**IXC** – Inter-exchange carriers

**Emergent IXCs** – Newly established IXCs

**CLECs** – Competitive Local Exchange Carriers

**RBOCs** – Regional Bell operating Companies

**ISP** – Internet Service Providers.



**Jitter** - Jitter is defined as short-term phase variations of the significant instants of a digital signal from their ideal position. The significant instant can be any convenient, easily identifiable point on the signal such as the rising or falling edge of a pulse. (source "Fiber Optic Test and Measurement", D. Derickson, )

**Jitter Tolerance** - Jitter tolerance is a measure of how well a receiver can tolerate a jittered incoming signal. It is determined by measuring the bit-error ration (BER) in the presence of applied jitter. One usually monitors up to the point of taking errors. Jitter frequency ranges from 10 Hz to 10 MHz

**Extinction Ratio** - Extinction ratio is defined as the average optical energy in a logic one divided by the average optical energy of a logic zero.

**3R Regeneration** – Functionality previously included in SONET Add-Drop Multiplexers and regenerators now incorporated with the DWDM terminal. This capability provides a re-timing, re-shaping and re-generation function enabling the construction of long-haul transmission over thousands of kilometers via concatenated spans.



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